

ARMAND, D.L.

Origin and types of natural boundaries. Izv.Vses.geog.ob-va
87 no.3:266-278 My-Je '55. (MIRA 8:9)
(Physical geography)

ARMAND, David L'vovich; DOBRYNIN, Boris Fedorovich [deceased]; YEFIMOV, Yuriy Konstantinovich; ZIMAN, Lev Yakovlevich; MURZAYEV, Eduard Makarovich; SPRYGINA, Lyudmila Ivanovna; MESTERGAZI, M.M. [deceased], redaktor; VASIL'YEVA, O.S., redaktor; SMIRNOVA, N.P., redaktor; MAKHOVA, N.N., tekhnicheskiy redaktor.

[Non-Soviet Asia; its physical geography] Zarubezhnaia Azia; fizi-
cheskaiia geografiia. Moskva, Gos.uchebno-pedagog.izd-vo Ministerstva
prosveshcheniya RSFSR, 1956. 606 p. [Supplement] Prilozheniya 1956.
13 leaves (fold.maps).

(MLRA 9:5)
(Asia--Physical geography)

ARMAND, D. L.

14-57-7-14404

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 7,
pp 20-21 (USSR)

AUTHOR: Armand, D. L.

TITLE: Special Requirements of Agriculture on the Eroded Lands
of the Steppe and Forest-Steppe Zones of the USSR
(Osobennosti sel'skokhozyaystvennogo ispol'zovaniya
erodirovannykh zemel' v stepnoy i lesostepnoy zonakh
SSSR)

PERIODICAL: V sb: Vopr. geografii. Moscow-Leningrad, AN SSSR,
1956, pp 281-289

ABSTRACT: Planned agriculture must make full use of natural
resources in each locale and must be so conducted as
to preserve its productivity. Every agricultural
organization must possess a detailed description and
plans of its own territory (relief, soil and vegetable
cover, moisture, and microclimate), and also data on

Card 1/4

Special Requirements of Agriculture (Cont.)

14-57-7-14404

previously applied reclamation measures. The techniques which have proved themselves to be effective in each sector must be indicated, as must be the ones which have failed. These plans, showing the outlines of the area, based on contour, are known as cadastral maps. Water is the main agricultural problem in the steppe and forest-steppe zones. Annual precipitation is 250 mm to 500 mm, and 40 to 50 percent of it is available for transpiration. In order to preserve a proper water balance, plowing must produce such a surface and structure of soil that streams running off the slopes will be smaller and move slower than they do before the plowing. In steppe and forest-steppe zones it is necessary to utilize, reclaim, and place under cultivation every kind of land (including slopes and loose soils) with the help of specialized agricultural techniques and of reclamation. High soil porosity can best be obtained by proper crop rotation and by planting adequate amounts of cereals and legumes. When slopes are greater than two or three degrees, it is necessary to resort to contour plowing and to erect retaining walls,

Card 2/4

14-57-7-14404

Special Requirements of Agriculture (Cont.)

so that the fields will have a cellular microrelief when snow melts. When slopes are greater than four or five degrees, it is necessary to build either retaining walls or drainage ditches, so as to decrease the amount of soil erosion. Management of slopes is possible only after the fields have been divided into small units enclosed within horizontal contours. One should build terraces (the most expensive way to change the microrelief) only when the slopes are greater than eight or ten degrees, and even then it should only be done when the soil can produce valuable crops. Another way to secure precipitation at the proper time over a given area is to plant protective forests. These forests fall into two categories: those which protect the fields, and those which retain the slopes. The former are further divided into wind breaking, water absorbing (antierosion), and combined stands. The last are so called because they can perform the functions of both former types. Wind breaking forests can be planted only on slopes no steeper than one and a half degrees, and they must be narrow and open. Best suited for water absorbing are longitudinal Card 3/4

14-57-7-14404

Special Requirements of Agriculture (Cont.)

forest strips (in belts 20 m to 60 m wide), capable of catching the water which the ground has failed to retain. Transverse forests should not be planted on slopes steeper than one and a half or two degrees, because the melt waters which flow along their edges increase the erosion. Wind breaking forests should not be too far apart (no more than 600 m in forest-steppe and 150 m to 200 m in dry steppe). Variations of the relief and the limits of the forest effectiveness impose natural limitations beyond which land utilization cannot be extended and agriculture becomes unprofitable. Each area has an optimum potential. Interrupted-furrow plowing must be substituted for continuous-furrow plowing, particularly in regions of broken relief and in arid areas where the interforest zones must be small. Limits of land use, amount of arable land, and type of crop rotation must conform to the plans made for conserving and improving the land. A bibliography of 16 titles is included. (In-t geogr. AN SSSR (Geographical Institute of the AS USSR, Moscow).

Card 4/4

V. V. V.

ARMAND, D.L.

Distribution of forest belts and a discussion on soil runoff. Izv.
SSSR. Ser. geog. no.2:95-105 Mr-Ap '56. (MLRA 9:8)
(Runoff) (Windbreaks, shelterbelts, etc.)

GERASIMOV, I.P.; ARMAND, D.L.; BUDYKO, M.I.; DAVITAYA, P.F.; DZERDZEYEVSKIY, B.L.;
KUNIN, V.N.; L'VOVICH, M.I.; RIKHTER, G.D.; SHEVTSOV, P.F.

Thermal and hydrological regime of the earth's surface, its role in the
dynamics of natural processes, geographical differences, and methods of
transforming it for practical purposes. Izv.AN SSSR,Ser.geog. no.4:
47-59 Jl-Ag '56.

(Hydrology)

(MLRA 9:10)

ARMAND, D.L.; YEFREMOV, Yu.K.

The Second Conference on the Study of Physical Environment. Issv.
AN SSSR. Ser. geog. no.6:143-148 N-D '56. (MLRA 10:1)
(Physical geography--Congresses)

110-1142, D.2.

Popov, I.V.

X(4,5)

PHASE I BOOK EXPLOITATION

SOV/1653

Akademika nauch SSSR. Komitet po geodesii i geofizike.

Tesiny dokladov na XI General'noy assamblee Nezhidmanskogo geodesicheskogo i geofizicheskogo soveta. Nezhidmanskaya assambleya nauchnyy gidrologii (Abstracts of Reports Submitted to the 11th General Assembly of the International Union of Geodasy and Geophysics. The International Association of Scientific Hydrology) Moscow, 1957. 100 p. /Parallel texts in Russian and English or French/ 1,500 copies printed.

No additional contributors mentioned

PURPOSE: This booklet is intended for hydrologists and civil engineers.

COVERAGE: This collection of abstracts covers reports presented at the 11th General Assembly of the International Union of Geodasy and Geophysics on hydrological, erosional, and glaciological processes. Studies related to problems of underground water, snow, and rivers are also discussed. The abstracts are in Russian, with English or French translations. Those appearing in English are designated by a single asterisk; those in French by two. There are no references given.

Card 1/4

Silin-Sobolev, A.I. Types of Hydrochemical Maps in Hydrogeology	68
Chernov, N.V. Hydrological Maps and Their Importance in Evaluating the Water-Bearing Capacity and Reserves of Underground Water	70
Avsyuk, G.A. Glaciological Studies in the USSR	71
Sulakvalidze, G.K. Physical Properties of a Snow Cover	76
Svetozarov, P.F. Subject and Basic Problems in Geoclimatology in the USSR	81
Shenkin, P.A. Basic Problems in Modern Climatology in the Light of Present-Day Studies by Soviet Scientists	85
Arenz, B.J. Problems in the Study of Erosion Processes on the Territory of the USSR	90
AVAILABLE: Library of Congress (SOV/1653-A7)	95
Card 4/4	

SOV/1653
9-20-79

Armand, D.L.
ARMAND, D.L.

The absorption of heavy rain runoff in forest belts. Izv. AN
SSSR Ser. gog. no.2:13-32 Mr-Ap '57. (MIRA 10:12)

1. Institut geografii AN SSSR.
(Forest influences) (Runoff)

ARMAND, D.L.

Current tasks in controlling droughts and erosion by afforestation.
Okhr. prir. i zapov. delo v SSSR no. 2:85-94 '57. (MLRA 10:8)

1. Institut geografii Akademii nauk SSSR.
(Windbreaks, shelterbelts, etc.) (Erosion)

ARMAND, D.L.

Evaluation of the quality of land is a most important task for
geographers. Nauk zap. L'viv. un. 40:27-42 '57. (MIRA 11:6)

1. Institut geografii AN SSSR, Moskva.
(Land--Classification) (Cadastral)

"APPROVED FOR RELEASE: 06/05/2000

CIA-RDP86-00513R000102120003-2

ARMAND, D.L.

Subject, task, and aim of physical geography. Top. geog. no. 40:
68-102 '57. (NIMA 10:8)
(Physical geography)

APPROVED FOR RELEASE: 06/05/2000

CIA-RDP86-00513R000102120003-2"

ARMAND, D.L.

AUTHOR: None Given.

30-12-36/45

TITLE: Defense of Dissertations (Zashchita Dissertatsiy).
January - July 1957 (Yanvar' - iyul' 1957)
Section of Geological-Geographical Sciences
(Otdeleniye geologo-geograficheskikh nauk)

PERIODICAL: Vestnik AN SSSR, 1957, Vol. 27, Nr 12, pp. 113-115 (USSR)

ABSTRACT: At the Institute for Geography (Institut geografii).
Applications for the degree of Doctor of Geographical
Sciences: D. L. Armand Physical-geographical bases of the
projecting of a network of protective forests (Fiziko -
geograficheskiye osnovy proyektirovaniya seti zashchitnykh
lesnykh nasazhdenniy). A. S. Dobrov - Great Britain (economic
geography) (Velikobritaniya (ekonomicheskaya geografiya)).
Applications for the degree of Candidate of Geographical
Sciences: M. A. Zolotarev - The causes of climatic development
in the ice age - with respect to anthropogenesis (Prichiny
formirovaniya klimata lednikovogo perioda - antropogena).
G. Sandagzhav - The central part of North Mongolia (economic
geographical characterization (Tsentral'naya chast' Severnoy
Mongolii ekonomiko-geograficheskaya kharakteristika)).

Card 1/6

Defense of Dissertations.
January - July 1957.

Section of Geological-Geographical Sciences

30-12-36/45

At the Permafrost Institute imeni V. A. Obrucheva (Institut merzlotovedeniya imeni V. A. Obrucheva). Application for the degree of Doctor of Geographical Sciences: N. A. Grave - The conditions of and the rules governing the development of rocks frozen in for many years in the Chuckchee country and on Kamchatka (Usloviya i zakonomernosti razvitiya mnogoletnemerzlykh gornykh porod v Chukotsko -Koryakskoy strane i na Kamchatke). Applications for the degree of Candidate of Geological-Mineralogical Sciences: N. P. Anisimova - The chemical composition of shovground and subterranean waters of the catchment drainage area of the Lena middle reaches as an index of the geocryological conditions of their formation (Khimicheskiy sostav poverkhnostnykh i podzemnykh vod basseyna srednego techeniya reki Leny kak pokazatel' geokriologicheskikh usloviy ikh formirovaniya). I. V. Boyko - Investigations of the dependence of the phase composition and the mechanical properties of the frozen soil on temperature and pressure (Issledovaniya zavisimosti fazovogo

Card 2/6

Defense of Dissertations.
January - July 1957.

30-12-36/45

Section of Geological-Geographical Sciences

sostava i mekhanicheskikh svoystv merzlykh gruntov ot temperatury i davleniya). Application for the degree of Candidate of Geographical Sciences: N. G. Bobrov - The peculiar features of the mass of rocks frozen for many years and their accompanying formations in the Southern Koryak district and on Northern Kamchatka (Osobennosti tolshchi mnogoletnemerzlykh gornykh porod i soputstvuyushchikh im obrazovaniy v Yuzhno-Koryakskoy strane i na Severnoy Kamchatke).

At the Institute for the Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry (Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii). Applications for the degree of Doctor of Geological-Mineralogical Sciences: Yu. P. Ivensen - The forming of granite pegmatites in connection with the development of geological structure. (Stanovleniye granitnykh pegmatitov v svyazi s razvitiyem geologicheskoy struktury). A. S. Povarennykh - crystallochemical bases of the modern text book of Mineralogy (Kristallokhimicheskiye osnovy sovremennoego

Card 3/6

Defense of Dissertations.
January - July 1957.

30-12-36/45

Section of Geological-Geographical Sciences

uchebnika mineralogii). M. G. Rub - Granitoids of the Khankai district and the essential features of their property of containing metal (Granitoidy Prikhankayskogo rayona i osnovnyye cherty ikh metallonosnosti). Application for the degree of Candidate of Geological Sciences: K. N. Rudich - Magma formations of the central parts of the Sarytchev chain and its content of ore (Magmaticheskiye obrazovaniya tsentral'noy chasti tsepi Sarycheva i ikh rudonosnost').

At the Institute for Geology (Geologicheskiy institut). Applications for the degree of Doctor of Geological-Mineralogical Sciences: V. A. Balayev - Devonian deposits of the central and southern regions of the Volga-Ural province second Baku in connection with the perspectives concerning their oil-containing properties (Devonskiye otlozheniya tsentral'nykh i yuzhnykh rayonov Volgo-Ural'skoy provintsii (Vtorogo Baku) v svyazi s perspektivami ikh neftenosnosti). P. A. Mcchedlishvili - The biostratigraphical importance and the paleoecology of the Neogene floras of the Caucasus (Biostratigraficheskoye znacheniye i paleoekologiya neogenovykh

Card 4/6

Defense of Dissertations.

January - July 1957.

Section of Geological-Geographical Sciences

30-12-36/45

flor Kavkaza). P. Ye. Offman - Tectonics and volcanic tubes of the central part of the Siberian Plateau (Tektonika i vulkanicheskiye trubki tsentral'noy chasti Sibirs'koy platformy). Applications for the degree of Candidate of Geological-Mineralogical Sciences: Ye. M. Zhgenti - Development of the mollusc fauna of Georgia Conchitic Horizon (Razvitiye mollyuskovoy fauny konkskogo gorizonta Gruzii). O. A. Lipina - Foraminifers and stratigraphy of the boundary layers of the Devonian - and mineral coal system and the Tourné stage of the eastern part of the Russian Plateau and of the Western slope of the Ural Mountains (Foraminifery i stratigrafiya pogranichnykh sloyev devonskoy i kamennougol'noy sistem i turneyskogo yarusa vostochnoy chasti Russkoy platformy i zapadnogo sklona Urala). V. I. Murav'yev - Mineralogy and petrography of the continental mass of the western part of the Vilyuy depression (Mineralogiya i petrografiya kontinental'noy tolshchi zapadnoy chasti Vilyuyskoy vpadiny). G. I. Nosov - Lithology of the Turan-Konyak mass of the chalk on the right bank of the river Don

Card 5/6

Defense of Dissertations.
January - July 1957.
Section of Geological-Geographical Sciences

30-12-36/45

(Litologiya turansko-kon'yakskoy tolshchi mela pravoberezh'ya
Dona). I. A. Rezanov - tectonics and seismism of the
Turkmenian Choran mountains (Tektonika i seysmichnost'
Turkmeno-Khorasanskikh gor). B. S. Rusanov - Aeromethods of
geomorphological map plotting when searching for mineral
fields (Aerometody geomorfologicheskogo kartirovaniya pri
poiskakh rossyypey).

AVAILABLE: Library of Congress.

1. Geography 2. Permafrost 3. Mineralogy 4. Geology

Card 6/6

TSYS', P.N.; KALESNIK, S.V.; SOKOLOV, N.N.; CHOCHIA, N.S.; PROTOPOPOV, A.P.; ZABELIN, I.M.; GVOZDETSkiY, N.A.; YEFREMOV, Yu.K.; KARA-MOSKO, A.S.; KOZLOV, I.V.; SOLNTSEV, N.A.; ISACHENKO, A.G.; ARMAND, D.L.; MIROSHNICHENKO, V.P.; PETROV, K.M.; KAZAKOVA, O.N.; MIKHAYLOV, N.I.; PARMUZIN, Yu.P.; GERENCHUK, K.I.; MIL'KOV, F.N.; TARASOV, F.V.; NIKOLAYEV, V.N.; SOBOLEV, L.N.; RYBIN, N.N.; DUMIN, B.Ya.; IGNAT'YEV, G.M.; MEL'KHEYEV, M.N.; SANEBLIDZE, M.S.; VASIL'YEVA, I.V.; PEREVALOV, V.A.; BASALIKAS, A.B.

Discussion at the conference on studying land forms. Nauk. zap. L'viv. un., 40:231-267 '57. (MIRA 11:6)
1. L'vovskiy gosudarstvennyy universitet (for TSys', Gerenchuk, Dumin).
2. Laboratoriya aerometodov AN SSSR, Leningrad (for Sokolov, Miroshnichenko, Petrov). 3. Institut geografii AN SSSR, Moskva (for Armand, Sobolev). 4. Gosudarstvennyy universitet, Voronezh (for Mil'kov, Tarasov). 5. Leningradskiy gosudarstvennyy universitet (for Chochia, Isachenko, Kazakova). 6. Komissiya okhrany prirody AN SSSR, Moskva (for Protopopov). 7. Gosudarstvennyy universitet, Chernovtsay (for Rybin). 8. Gosudarstvennyy universitet, Irkutsk (for Mel'kheyev). 9. Gosudarstvennyy pedagogicheskiy institut im. V.I. Lenina, Moskva (for Vasil'yeva). 10. Bol'shaya Sovetskaya Entsiklopediya (for Zabelin). 11. Gosudarstvennyy universitet, Tbilisi (for Saneblidze). 12. Moskovskiy gosudarstvennyy universitet (for Gvozdetskiy, Solntsev, Mikhaylov, Parmuzin, Nikolayev, Ignat'yev). 13. Torgovo-ekonomicheskiy institut, L'vov (for Perevalov). 14. Gosudarstvennyy institut im. Kapsukasa, Vil'nyus (for Basalikas). 15. Muzej zemlevedeniya Moskovskogo gosudarstvennogo universiteta (for Yefremov, Kozlov). 16. Srednyaya shkola No.13, Kiyev (for Kara-Mosko). (Physical geography)

ARMAND, D.L.

ARMAND, D.L.

Physical nature of erosion and its control on arable slopes.
Izv.Vses.geog. ob-va 89 no.3:243-247 My-Je '57. (MIRA 10:11)
(Erosion)

ARMAND, D.L.

Erosion control on slopes of the hydrographical net by planting
edgeside shelterbelts. Pochvovedenie no.2:39-49 F '58. (MIRA 11:3)

1. Institut geografii AN SSSR.
(Windbreaks, shelterbelts, etc.) (Soil conservation)

ARMAND, D.L.

Qualitative evaluation of soils and a cadaster of lands. Vop.
geog. no.43:59-85 '58.
(Soil surveys) (MIRA 12:5)

ARMAND, D.

Protection of the slopes of hydrographic systems against erosion with the aid of marginal forest belts. p. 160.

ANALELE ROMANO-SOVIETICE. SERIA GEOLOGIE-GEOGRAFIE. Bucuresti, Romania
Vol. 12, no. 2, Apr./June 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 9, no. 1, January 1960.
Uncl.

ARMAND, D. L.

"Geographical Works for the Improvement of Registration and Utilization
of Land in the USSR"

report to be submitted for the Intl. Geographical Union, 10th General Assembly
and 19th Intl. Geographical Congress, Stockholm, Sweden, 6-13 August 1960

GERASIMOV, I.P.; ARMAND, D.L.; DAVITAYA, F.F.; DOLGOPOLOV, K.V.; SIL'VESTROV,
S.I.

Scientifically based agricultural management in the U.S.S.R. and tasks
in Soviet geography. Izv. AN SSSR. Ser. geog. no.5:3-10 S-0 '60.
(MIRA 13:10)

1. Institut geografii AN SSSR.
(Agricultural geography)

ARMAND, David L'vovich; GAL'TSOV, A.P., doktor geogr. nauk, otd. red.;
SENILOVA, M.N., red. izd-va; YEPIFANOVA, L., tekhn. red.

[The physicogeographical principles of planning the forest
shelterbelt systems] Fiziko-geograficheskie osnovy proektirova-
niia seti polezashchitnykh lesnykh polos. Moskva, Izd-vo Akad.
nauk SSSR, 1961. 366 p. (MIRA 14:8)
(Windbreaks, shelterbelts, etc.)

ARMAND, D.L.

Rational utilization of natural resources and objectives of Soviet
geography. Izv. AN SSSR. Ser. geog. no.1:18-56 Ja-F '61.

1. Institut geografii AN SSSR.
(Natural resources)

(MIA 14:2)

(Geographical research)

ARMAND, D.L.

Altering nature in the Dnieper reservoir region. Izv. AN SSSR.
Ser. geog. no. 4:58-65 Jl-Ag '61. (MIRA 14:?)

1. Institut geografii AN SSSR.
(Dnieper Valley--Reservoirs) (Dnieper Valley--Agriculture)

ARMAND, D.L.; GOKHMAN, V.M.; MASHBITS, Ya.G.; NAZAREVSKIY, O.R.; RYAZANTSEV,
S.N.

On the 80th birthday of Nikolai Nikolaevich Baranskii. Izv. AN
SSSR. Ser. geog. no.5:148-150 S-O '61. (MIRA 14:9)
(Baranskii, Nikolai Nikolaevich, 1881-)

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ARMAND, D.L.

Importance of geomorphology in agriculture. Vop.geog. no.52:12-27
'61. (MIRA 14:6)
(Agriculture) (Physical geography)

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CIA-RDP86-00513R000102120003-2"

ARMAND, D., prof.

Protect the fertility of soil. IUn. tekhn. 5 no. 2;12-16 F '61.
(MIRA 14:5)
(Soil conservation)

ARMAND, D.L.; BARANSKIY, N.N.; OBRUCHEV, S.V.

The international language problem in scientific contacts and
scientific work in geography. Izv. Vses. geog. ob-va 93 no.4:
297-303 Jl - Ag '61.
(Esperanto) (Geography--Terminology) (MIRA 14:7)

ARMAND, D. L.

Rational utilization of natural resources, and tasks of
Soviet geography. Analele geol geogr 16 no.1:110-119 Ja-Mr '62.

GERASIMOV, I.P., akademik, otv. red.; ARMAND, D.L., doktor geogr.
nauk, otv. red.; EFRON, K.M., otv. red.; TIKHOMIROV, V.N.,
red. izd-va; ASRAF'YEVA, G.A., tekhn. red.

[Natural resources of the Soviet Union, their utilization and
reproduction] Prirodnye resursy Sovetskogo Soiuza, ikh ispol'-
zovanie i vosprievodstvo. Moskva, Izd-vo Akad. nauk SSSR,
1963. 241 p. (MIRA 16:3)

1. Akademiya nauk SSSR. Institut geografii. 2. Institut geografii
Akademii nauk SSSR (for Armand, Gerasimov).
(Natural resources)

GERASIMOV, I.P.; Prinimali uchastiye: ARMAND, D.L., nauchnyy sotrudnik; BUDAGOVSKIY, A.I., nauchnyy sotrudnik; L'VOVICH, M.I., nauchnyy sotrudnik; SIL'VESTROV, S.I., nauchnyy sotrudnik; SOBOLEV, L.N., nauchnyy sotrudnik

Reduce and bring to a minimum the dependence of our agriculture on natural elements. Izv. AN SSSR. Ser. geog. no.5:43-51 S-0
'62. (MIRA 15:10)

1. Institut geografii AN SSSR.
(Agriculture) (Geographical research)

ARMAND, D.L.; Prinimali uchastiyе: ZVORYKIN, K.V.; LETUNOV, P.A.

Qualitative land evaluation and farm land cadastre. Izv. AN
SSSR. Ser. geog. no.5:52-57 S-0 '62. (MIRA 15:10)

1. Institut geografii AN SSSR.
(Land)

"APPROVED FOR RELEASE: 06/05/2000

CIA-RDP86-00513R000102120003-2

ARMAND, D.L.

For high mapping standards in physicogeographical research. Izv.
AN SSSR. Ser. geog. no.3:130-132 My-Je '63. (MIRA 16:8)
(Cartography) (Physical geography--Maps)

APPROVED FOR RELEASE: 06/05/2000

CIA-RDP86-00513R000102120003-2"

ARMAND, D.L.; Prinimal uchastiye: L'VOVICH, M.I.; RAUNER, Yu.L.;
LOBOLEV, L.N.

Landform geophysics. Izv.AN SSSR. Ser. geog. no. 2:12-23
Mr-Ap '64. (MIRA 17:5)

1. Institut geografii AN SSSR.

ARMAND, D.L.; KARPOV, L.N.; KOVALEVSKIY, V.P.

Conservation of natural resources in the foreign countries.
Izv. AN SSSR Ser. geog. no.4:97-110 '64 (MIRA 17:8)

I. Institut geografii AN SSSR.

ARMAND, D.L.

The Budapest conference on the use of land, May 6-10, 1964.
Izv. AN SSSR. Ser. geog. no.5:98-101 S-0 '64.

(MIRA 17:11)

"APPROVED FOR RELEASE: 06/05/2000

CIA-RDP86-00513R000102120003-2

ARMAND, D.J., prof.

Second Conference of the Organization in the Countries of Central
and Eastern Europe, Warsaw 1964. N 34 p. 9.000.000. S 164.

(MIRA 17.10)

APPROVED FOR RELEASE: 06/05/2000

CIA-RDP86-00513R000102120003-2"

ARGASOVA, K.N.; ARMAND, D.I.; DROZDOV, A.V.

Conference on Landform Geophysics. Izv. AN SSSR. Ser. geog.
no.4:138-143 Jl-Ag '65. (NIRA 18:8)

SIL'VESTROV, S.I.; LISICHEK, Ye.N.; MIRONOVA, Ye.A.; STUFINA,
N.M.; ARMAND, D.L., doktor geogr. nauk, ovt. red.

[Regionalization of the U.S.S.R. according to the basic
factors of erosion] Raionirovanie territorii SSSR po
osnovnym faktoram erozii. Moskva, Nauka, 1965. 233 p.
(MIRA 18:6)

1. Akademiya nauk SSSR. Institut geografii.

KORZHUYEV, S.S.; VITVITSKIY, G.N.; YEGOROV, O.V.; NAUMOV, S.N.;
ZOL'NIKOV, V.G.; KARAVAYEV, M.N.; KACHURIN, S.P.;
KOSMACHEV, K.P.; Prinimalni uchastiye: KORONKEVICH, N.I.;
D'YAKONOV, F.V.; GERASIMOV, I.P., akademik, red.;
PREOBRAZHESNKIY, V.S., red.; RIKHTER, G.D., red.; ALRAMOV, L.S.
red.; ARMAND, D.L., red.; GELLER, S.Yu., red.; ZONN, S.V., red.;
DZERDZEYEVSKIY, B.I., red.; KOMAR, I.V., red.; LAVRENKO, Ye.M.,
red.; LEONT'YEV, N.F., red.; LETUNOV, P.A., red.; L'VOVICH,
M.I., red.; MESHCHERYAKOV, Yu.A., red.; MINTS, A.A., red.;
MURZAYEV, E.M., red.; NASIMOVICH, A.A., red.; POKSHISHEVSKIY,
V.V., red.; POMUS, M.I., red.; ROZOV, N.N., red.; SOCHAVA, V.B.,
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ISAKOV, Yu.A.; LEONT'YEV, N.F.; L'VOVICH, M.I.; MURZAYEV, E.M.;
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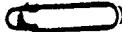
ARMAND - N. A.

✓ Ю. В. Балашов

Анализ метода определения частоты

II СЕССИЯ РАСПРОСТРАНЕНИЯ РАДИОВОЛН

Руководитель: А. А. Жигулов

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✓ А. В. Прокофьев,
В. О. Губайдуллин

Изучение вопроса теории радиотехники при расширении распространения УКВ

✓ А. В. Прокофьев,
✓ Г. И. Сидоров,

✓ Н. Н. Альбенов

Задачи практического использования радиотехнического про-
гноза при дальнем трансформации распространения УКВ

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✓ В. А. Басинский,
В. А. Арефьев

О возможном методе определения частоты при дальнем трансформации распространения УКВ

✓ А. В. Шабалинцев

К вопросу о применении метода измерения промежутка времени между измерениями частоты в его связи со спаренными измерениями времени

✓ В. А. Киселев,

✓ О. Г. Басов

К теории распространения радиоволн в среде со случайным коэффициентом поглощения и ее практической ценности

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✓ А. В. Неструев,

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✓ В. В. Григорьев

Факторы влияния фронта при распространении антидифракционных решеток на излучаемые радио-
волны

00

Report submitted for the Centennial Meeting of the Scientific Technological Society of
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Report available, Encl. to B-3,176,875, 30 Jan 61

9,9300 (1344)

24460

S/109/61/006/006/001/016
D204/D303

AUTHORS: Armand, N.A., Vvedenskiy, B.A., Kalinin, A.I.,
Kolosov, M.A., Sokolov, A.V., Shabel'nikov, A.V.,
and Shirey, R.A.

TITLE: A survey of work on the tropospheric propagation of
ultrashort radiowaves

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 6, 1961,
867 - 885

TEXT: The large body of experimental work done in this field has
been aided by the perfecting of apparatus and auxiliary instru-
ments and given impetus by the need for more knowledge to assist
the development of telephony, television and radio communications.
The authors examine the following: 1) Relations between field
strength and distance; 2) Signal level and frequency: the theore-
tical picture is confused, state the authors, but most experimen-
tal work suggests that P_r/P_o (P_r - received power, P_o - value in

Card 1/8

24460

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D204/D303

A survey of work on the ...

free space) declines as the frequency rises. No uniform value of $P_r(\lambda)$ has been found as yet, probably because of the changeability of the tropospheric structure and meteorological conditions; 3) Signal and time: Signal fading may be rapid or slow. Most information concerns 300 - 500 km traces. Slow fading is caused by the appearance or disappearance of inversion layers, large irregularities and changes in the value of $d\varepsilon/dh$. Usually the signal strength is greater in the evening and at night, clearer in summer than in winter and at shorter (100-150 km) rather than longer (400 - 500 km) distances. The amplitude is related to frequency; also, as it combines with slow fading, the average amount of fading increases reaching, according to some sources, a maximum at 100-130 km. Others maintain that it declines with increase in distance to an equal summer and winter value of 3 - 10 db at 900 km; 4) Loss of antennae amplification: The phenomenon occurs beyond the horizon and means that for an antenna with an amplification coefficient G, exceeding 35-40 db, amplification is less than in free space. To account for this there are two hypotheses: (1) Spreading of radio-

Card 2/8

24460

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D204/D303

A survey of work on the ...

waves in a statistically non-homogeneous medium leads to distortion of the wave front in the plane of the receiving antenna and thus the energy absorbed is less than in the absence of amplitude and phase fluctuation, (2) elementary waves with various random angles of approach may reach the receiving antenna. These hypotheses have been investigated but comparison of results is hampered by differences in experimental conditions. For a 300 km trace the amplification loss increases with increase in the average amplification of receiving and transmitting antennae and with an increase of D to 300 - 500 km and $f = 2290$ megacycles. At greater distances the loss falls; 5) Signal distortion: Work in this field either treats the troposphere as an ideal quadruple network or aims to determine the amplitude correlation of the signal components on different frequencies in the transmitted spectrum. If with antennae with low directivity the amplitude of delayed waves is diminished by diffraction weakening of the earth's surface and the "directivity" of the troposphere, then at antennae with narrow patterns the amplitude of these waves decreases because of the di-

Card 3/8

24460

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D204/D303

A survey of work on the ...

rectivity of the antenna. The maximum transmitted frequency band depends on the width of the directivity pattern of the antenna. The random nature of the tropospheric radiation means that signal distortion has a random pattern as experiments in the USSR have confirmed. Two separated antennae in space diminish distortion and guarantee a large carrying capacity of tropospheric radio links;

6) Radio-meteorological research: Refractometric measurements have dealt with the structure of the troposphere and, in particular, the value of $\epsilon(h)$, $(\Delta \epsilon)^2$ and the area of turbulence

$$\sqrt{(\Delta \epsilon)^2}$$

usually varies within the range 0.3 - 3N units and irregular layers are usually 1 - 300 m thick. "Jump" intensity in these regions is usually 2 - 50 or 60 N units, large especially in the "invisible clouds". It was stated that at a height $h = 3000$ m and more $(\Delta \epsilon)^2/l$ is too small to explain distant fields and its alteration with height does not give the necessary value of $P_r(D)$. The authors

Card 4/8

A survey of work on the ...

24460
S/109/61/006/006/001/016
D204/D303

then deal with incoherent scatter and globular irregularities: In the last few years much attention has been devoted to the conception of incoherent scatter. Two chief theories have been established: One which gives for the frequency subordinate of P_r/P_0 , a coefficient of $\lambda^{7/3}$, and the theory of "disturbance of the gradient", which gives λ . The second approaches more closely to the experimental facts, and is generally preferred. Maxwell's equations for statistically non-homogeneous layers above a spherical earth have not yet been resolved and a solution must combine the theory of diffraction spread with pereoptical theory. All theories, in essence, approach those of a "radar form type"

$$\frac{P_r}{P_0} = QD^2 \int_V \frac{\sigma(\theta)}{R_1^2 R_2^2} dV. \quad (1)$$

where Q is a constant factor; $\sigma(\theta)$ - "scatter area" - a junction for the influence of fluctuation ϵ and its relation to λ and the

Card 5/8

A survey of work on the ...

24160
S/109/61/006/006/001/016
D204/D303

gradient $d\varepsilon/dh$; with this formula theory discrepancy concerns basically the value of $\sigma \cdot \delta$, moreover, can be expressed simply as

$$\sigma(\theta) = \frac{b}{\sin^m(\theta)}$$

where θ - radiation angle, equal to the angular distance between transmitter and receiver; b - expression giving ratios of 1, $d\varepsilon/dh$ and others to $(\Delta g)^2$. For whole even numbers $m > 2$ this accords well with a general formula and is integrated with formula 2 to give

$$\frac{P_r}{P_0} = Q b A_m D^{-m+3}, \quad (2)$$

where A_m depends on m . If $b \approx h^{-n}$, then $D^{-m+3-2n}$ replaces D^{-m+3} ; m can be substituted by nearest even whole number, in cases of close approximation. Current theories give results approximate to

Card 6/8

20460

A survey of work on the ...

S/109/61/006/006/001/016
D204/D303

Eq. 2. Finally mentioned are: a) incoherent scatter and turbulency layers, and b) coherent reflecting layers. On a) it is pointed out that the use of tropospheric layers for wave reflection has been extensively studied and that in 1955 V.N. Tronitskiv (Ref. 107: Radiotekhnika, 1956, 11, 5, 3) obtained a calculated formula which accorded with experimental observations. On b) it is noted that stable layer reflection has met with two objections: The first concerns the incompatability of the existence of great changeability patterns over long distances with the idea of stable tropospheric layers; the second, is, however, theoretical and hardly affects the practical aspect of the problem; the existence of layers has been firmly established and it is positive that a diffraction approach to the problem of spread along the earth's curvature will be of value. A simplification of reported formulae was attempted and

$$\frac{P_r}{P_0} = \frac{1}{D} \Phi (\lambda, [\frac{d}{dh}]_0, h_1, h_2) \exp [-\alpha D],$$

Card 7/8

A survey of work on the ...

24160
S/109/61/006/006/001/016
D204/D303

was obtained, where Φ is a complicated function, analogous to the high factors of classical diffraction theory, containing frequency responses and 'jump' ratios $[d\epsilon/dh]_0$, α - another function of type $A - B \ln \lambda$ related to parameters, whose size A and B does not depend on λ . Though not strictly accurately descriptive of the fluctuation character of the field the equation gives the necessary experimental ratio $P_r(D)$. There are 9 figures and 119 references: 24 Soviet-bloc and 97 non-Soviet-bloc. The four most recent references to the English-language publications read as follows: Radio transmission by ionospheric and tropospheric scatter, Proc. I.R.E., 1960, 48, 1, 30; E.D. Denman, Proc. I.R.E., 1960, 48, 1, 112; I.H. Vogelman, I.L. Ryerson, M.H. Bickelhaupt, Proc. I.R.E., 1959, 47, 5, 688; L.A. Ames, E.T. Martin, E.J. Rogers, Proc. I.R.E., 1959, 47, 5, 769.

SUBMITTED: July 27, 1960

Card 8/8

24881

S/109/61/006/008/001/018
D207/D304

9.1200 (2603, 35°1, 1331)

... mand, N.A., and Vvedenskiy, B.A.

TITLE: Calculating the directional diagrams of antennae in conditions of diffraction of radio waves round the earth

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 8, 1961,
1219 - 1227

TEXT: When applying results obtained by taking the origin of radiated waves as a dipole, it is usual to calculate the radiation diagram of the actual antennae simply by multiplying the formula for the radiation intensity of the dipole by the directivity coefficient (Russian abbreviation: KND) of the actual antenna. But the correctness of this procedure needs verifying, bearing in mind that the form of the earth's surface may introduce modifications, particularly in the shadow zone. Analysis is based on the elementary u.s.w. vertical magnetic dipole, for which case calculations can be

Card 1/5

2468:
Calculating the directional ...

S/109/61/006/008/001/018
D207/D304

greatly simplified if the earth's surface is taken as perfectly conducting. A simple method is developed for calculating the diffraction field which consists essentially in integrating or summing the diffraction formulae for the fields of the elementary dipoles whose combination is equivalent to the actual aerial. The properties of antennae in free space are discussed first, taking the case of a vertical rectangular antenna. The starting expression for E and H is quoted from L.A. Vaynshteyn (Ref. 1: Elektromagnitnyye volny (Electromagnetic Waves), Izd. Sovetskoye radio, 1957). An expression is derived giving the magnetic moment surface density in terms of the radiation intensity and the directivity coefficient (defined as ratio of radiation intensity in the principal direction to intensity for isotropic radiation). Analysis for the horizontal diagram in the presence of the curved earth starts with an expression for the dipole field quoted from V.A. Fok (Ref. 2: Izv. AN SSSR, Ser. fiz., 1950, 14, 1, 70) and then introduces Airy's function. It is concluded that the directional properties in the horizontal plane are not modified by diffraction round the earth. The height of the antenna above the earth's surface is assu-

Card 2/5

24881

Calculating the directional ...

S/109/61/006/008/001/018
D207/D304

ned to be at least several wavelengths, which is justified for U.S.W. The problem of the vertical diagram is more complex, and involves an attenuation function which cannot be integrated in its general form, though it can be dealt with numerically, using available tables (Ref. 4: P.A. Azrilyant, M.G. Belina, Chislennyye rezul'taty teorii difraktsii radiovoli vokrug zemnoy poverkhnosti (Numerical Results of Theory of Diffraction of Radio Waves Round the Earth's Surface) Izd. Sovetskoe radio, 1957). A correction factor is thus derived involving the height of the antenna and expressing the effect of the diffraction due to the form of the earth. It is pointed out that in the diffraction zone the ratio of the fields radiated by a dipole and an actual antenna is not, as in free space, determined by the height of the receiving antenna. The numerical results are set out in a table showing values of the (real and imaginary parts of the) integral. They have been confirmed by check calculations made by G.B. Linkovskiy [Abstractor's note: No reference given] using Simpson's formula [Abstractor's note: No reference given]. Calculations made using the tabulated values indicate that over the range of reduced antenna height from 0 to 4.5 Card 3/5

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24881
Calculating the directional ...

S/109/61/006/008/001/018
D207/D304

and over the range of reduced antenna vertical dimension 0 to 1, the correction factor is not very different from unity, and except in the case of large, high antennae the vertical diagram can be calculated with sufficient accuracy in practice by multiplying the diffraction formula of a dipole by the directivity coefficient of the antenna as has been done in the past. A method of integrating the height factor, in the case of comparatively low antennae, is indicated, but is more cumbersome than the direct numerical integration. In the case of very high antennae the correction factor can be derived by an asymptotic representation of the Airy function. The expression derived indicates that the intensity of the diffraction field is determined by the fraction of the field which is radiated in the direction of the horizon. From reciprocity considerations, the results obtained here for a transmitting antenna are equally applicable to receiving antennae. There are 1 table, and 13 references: 11 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: G. N. Watson, Proc. Roy. Soc. A, 1918; and B.H. Bremmer, Terrestrial

Curva 4/5

3.5150 (114)

S/109/61/006/012/002/020
D246/D305AUTHOR: Armand, N.A.TITLE: Fluctuations of atmospheric thermal radiation on
the centimeter and millimeter wavesPERIODICAL: Radiotekhnika i elektronika, v. 6, no. 12, 1961,
1961 - 1973

TEXT: In the literature there is only one paper, which investigates the above problem, that by K.S. Stankevich (Ref. 7: Izv. Vuzov. SSSR (Radiofizika) 1960, 3, 6, 968); in the author's opinion it contains unjustified assumptions and faulty results. Although the solutions for the problems, treated in both papers, are approximately the same, nevertheless there is a "qualitative difference", because Stankevich uses a formula for the 3-dimensional spectral density $k^{-11/3}$, instead of $k^{-5/3}$ (1-dimensional spectral density). The author investigates theoretically the fluctuations of the thermal radiation of the atmosphere in three parts. In the first part he establishes the statistical properties of the absorption coeffi-

4

Card 1/5

30427

S/109/61/006/012/002/020
D246/D505

Fluctuations of atmospheric ...

cient of radiation in air and in clouds. Here he has to make some assumptions because of the insufficient data on the subject, hence the results should be treated as preliminary. He assumes that the absorption coefficient, is a simple function of height:

$$\alpha(z) = \alpha_0 e^{-z/H} \quad (3)$$

and restricted the non-resonating frequency range, using the following dependency of α on temperature T :

$$\alpha = \beta_1 \frac{P^2}{T^{5/4}} + \rho p \left[\beta_2^{(1)} \frac{e^{-\frac{2\pi D}{T}}}{T^2} + \frac{\beta_2^{(2)}}{T^{5/4}} \right], \quad (5)$$

where P - pressure, ρ humidity, $\beta_{1,2}$ - molecular property. For $\lambda < 3$ cm, fluctuations in α are determined by fluctuations of humidity. It is also assumed that fluctuations of α happen locally-isotropically. It is assumed that $\rho_\alpha(x)$ is represented by a Taylor expansion $= e^{-x/l_\alpha}$ (where $l_\alpha \sim 100$ m). The combined coefficient of absorption in clouds $\beta = \alpha + \gamma(20)$, where γ - absorption coefficient

Card 2/5

Fluctuations of atmospheric ...

S/109/61,006/012/002/020
D246/VJ05

of a water drop. For the general case, when there is a layer of clouds, a cm thick, ($d = h_2 - h_1$) a complicated integral formula is obtained for the brightness temperature of antenna T_A (the temperature obtained as a result of atmospheric thermal radiation). However, assuming that fluctuations of the atmospheric and cloud temperature do not influence the fluctuations of T_A and that the temperature changes slowly with height, a simplified expression is derived:

$$T_A = \bar{T}_0 (1 - e^{-\bar{r}}) \quad (28)$$

where \bar{T}_0 - average atmospheric temperature on the surface of the earth,

$$\bar{r} = \overline{\eta(h_2)} - \overline{\eta(h_1)} + \overline{\tau(h_1)} + \overline{\tau(\infty)} - \overline{\tau(h_2)} \quad (29)$$

has the meaning of the average of full optical depth, where $\eta(z)$: optical depth of the cloud, and $\tau(z)$: optical depth of the atmosphere. In the second part the author investigates the fluctuations in the brightness temperature of an antenna. For the case of atmosphere.

Card 3/5

ZU421
S/109/61/006/012/002/020
D246/D305

Fluctuations of atmospheric ...

re with clouds, the dispersion of the full optical depth is approximately:

$$\sigma_r^2 = \frac{2d \tau_b \sigma_s^2}{\sin \psi}, \quad (50)$$

where ψ - angle of beam at point z. The dispersion of the brightness temperature of the antenna is given by

$$\sigma_{T_A} = \bar{T}_0 \sigma_r e^{-r}. \quad (53)$$

The author treats the atmosphere without clouds as a special case of the general solution for a cloudy atmosphere. The relative dispersion in the presence of clouds, if $r \ll 1$, becomes

$$\frac{\sigma_{T_A}}{\bar{T}_A} = \frac{\sigma_r \sqrt{2d \tau_b \sin \psi}}{\beta d + \alpha_0 H}. \quad (58)$$

The fluctuations are sharply increased in the presence of clouds. In the third part, the author establishes the angular correlations of the thermal radiation of a cloudless atmosphere. This is impor-

Card 4/5

Fluctuation of atmospheric ...

S/109/61/006/012/002/020
D246/V305

tant because the mean value of the brightness temperature and the intensity fluctuations of the temperature depend on the angle of the place. If one assumes two antennae receiving two beams, arriving at angle ψ_1 and ψ_2 and azimuth angle φ_1 and φ_2 , then the corresponding correlation function will be:

$$R_{TA}(\psi_1, \varphi_1; \psi_2, \varphi_2) = (\bar{T}_0)^2 R_r(\psi_1, \varphi_1; \psi_2, \varphi_2) e^{-r(\psi_1, \varphi_1) - r(\psi_2, \varphi_2)}, \quad (59)$$

where

$$R_r(\psi_1, \varphi_1; \psi_2, \varphi_2) = \int_0^{\infty} \int_0^{\infty} \frac{R_a(\zeta, \zeta')}{\sin \psi_1 \sin \psi_2} d\zeta d\zeta' \quad (60)$$

is the normalized correlation function of the brightness temperature (R_a is the correlation function for the fluctuation of the absorption coefficient at two points). R_r is then calculated for special cases. The angular radius of correlation increases with the increased angle of place. There are 6 tables, 10 references: 7 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: E.E. Gossard, IRE Trans., 1960, AP-8, 2; C.M. Crain, Proc. IRE, 1955, 43, 10.

SUBMITTED: April 27, 1961
Card 5/5

9,9622

34488
S/109/62/007/002/005/024
D201/D303AUTHOR: Armand, N.A.

TITLE: Diffraction of radiowaves around the earth in the conditions of stratified atmospheric inhomogeneities

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 2, 1962, 223 - 229

TEXT: The author investigates the conditions which should be satisfied by the attitude profile $n(h)$ of the refractive index of the atmosphere in order that there should be no coherent diffraction of UHF radiowaves around the earth. The investigation is made for the case of a vertical magnetic dipole, assuming the earth's surface to be perfectly conducting since the error thus introduced will have effect only up to a few wavelengths above the earth's surface. The refractive index n is assumed to be dependent only on height. The problem is solved by the method of standard equations. The standard equation is here the Airy equation

$$\frac{d^2u}{dz^2} + zu = 0. \quad (13)$$

Card 1/3

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Diffraction of radiowaves around ...

The analysis shows that in case of a non-linear, but sufficiently smooth height, profile of n , the concept of the equivalent radius remains valid and the corrections due to the non-linearity may be neglected. As a criterion of smoothness of $n(h)$ one can take the value of Schwartz' derivative. The latter is found to be large where either $n(h)$ or dn/dh is discontinuous and it follows that the model of Carroll and Ring does not satisfy the condition of smoothness since at

$$h = \frac{n_0 - 1}{g_0}$$

(g_0 - being the gradient of the refractive index taken with opposite sign) the Schwartz' derivative becomes infinite. If at certain heights $n(h)$ varies so rapidly that the Schwartz' derivative is not negligible, other methods will be necessary. The author thanks L.A. Vaynshteyn for the opportunity of using his unpublished calculations and B.A. Vvedenskiy for his comments. There are 18 references: 10 Soviet-bloc and 8 non-Soviet-bloc. The 4 most recent references to

Card 2/3

ARMAND, N.A.

Reply to K.S.Stankevich's remarks concerning N.A.Armand's article "Fluctuations of atmospheric thermal radiation on centimeter and millimeter wave lengths." Radiotekh. i elektron

7 no.7:1256-1257 '62.

(Atmospheric temperature) (Solar radiation) (Microwaves)
(Stankevich, K.S.)
(MIRA 15:6)

VINOGRADOVA, Marianna Bronislavovna; SEMENOV, Aleksandr Aleksandrovich;
ARMAND N.A., red.; KLYAUS, Ye.M., red.izd-va; LAUT, V.G.,
tekhn. red.

[Principles of the theory of tropospheric propagation of
ultrashort radio waves] Osnovy teorii rasprostranenia
ul'trakorotkikh radiovoln v troposfere. Moskva, Izd-vo AN
SSSR, 1963. 188 p. (MIRA 16:11)

(Radio waves)

ACC NR: AM5027749	Monograph	UR/
<u>Armand, N. A.; Vvedenskiy, B. A.; Gusyatinskiy, I. A.; Igoshhev, I. P.; Kuzakov, L. YA.; Kalinin, A. I.; Nazarova, L. G.; Nemirovskiy, A. S.; Frosin, A.V.; Ryskin, E. YA.; Sokolov, A. V.; Tarasov, V.A.; Tashkov, P. S.; Tikhomirov, YU. A.; Troitskiy, V. N. Fedorova, L. V.; Chernyy, F. B.; Shabel'nikov, A. V.; Shirey, R. A.; Shifrin, YA. S.; Shur, A. A.; Yakovlev, O. I.; Kolosov, M. A.; Levshin, I. P.; Lomakin, A. N.</u>		
Upper tropospheric propagation of ultrashort radio waves (Dal'neye troposfernoye rasprostraneniye ul'trakorotkikh radiovoln) Moscow, Izd-vo "Sovetskoye radio", 1965. 414 p. illus., biblio. 4000 copies printed.		
TOPIC TAGS: radio wave propagation, tropospheric radio wave, radio communication, space communication, tropospheric scatter communication, signal processing, signal distortion, field theory		
PURPOSE AND COVERAGE: This monograph is intended for specialists working in the field of radiowave propagation, designers of long-distance radio communication systems, and teachers and students of the advanced courses in schools of higher technical education. The monograph contains, for the most part, heretofore unpublished results of Soviet experimental and theoretical investigations in the field of long-distance <u>tropospheric ultrashortwave propagation</u> .		
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Problems of investigating the troposphere by means of refractometers, the mean level of signals, meteorological conditions and topography, fluctuation of arrival angles and distortions of antenna-directivity patterns, losses in antenna gain, and quick and slow fadings of signal levels are discussed. The statistical characteristics of the signals at diversity reception in time, space, frequency and angle as well as the distortion of signals in the communication systems are also investigated. The long-distance propagation theory is analyzed, and the engineering method of calculating field intensity at long-distance tropospheric propagation is given. At present, there is no theory of Long-Distance Tropospheric Propagation which can be applied effectively enough in practice. Thus, in the investigation of that propagation, considerable attention has to be paid to experiments. The special characteristics of geographical conditions of the territory involved should be taken into consideration during the analysis of experimental data and in their practical application because the conditions of propagation in arctic and tropical climates differ from those existing over seas and continents. A considerable part of the monograph deals with the investigations of long-distance tropospheric propagation carried out over dry land routes, 800 km long, in the central part of the USSR under the general supervision of B. A. Vvedenskiy and A. G. Arenberg (up to 1957). V. I. Siforov investigated problems con-

Card 2/10

ACC NR: AM5027749

nected with distortions and fluctuations of signals. References follow each chapter.

TABLE OF CONTENTS:

Foreword --

Ch. I. Radio Engineering Methods of Investigating the Troposphere
Dielectric Constant -- 5

Bibliography -- 16

Ch. II. Results of Troposphere Dielectric Constant Measurements -- 17
1. Relationship between the mean value of the air refraction index
and altitude. Standard radio-atmosphere -- 17
2. Fluctuations of the air refraction index -- 24
3. Some notions on the troposphere model -- 43

Bibliography -- 45

Ch. III. Average (mean) Signal Levels in Long Distance Tropospheric
Propagation of Ultrashort Waves (L.T.P.U.S.W) -- 48

Cord 3/10

ACC NR:

AM5027749

1. Equipment and measuring methods for the mean signal level -- 48
2. Signal attenuation function in LTP USW -- 54
3. Relationship between mean signal level and the distance -- 57
4. Relationship between mean signal level and the wavelength -- 63
5. Relationship of mean signal level and the shadow angles of both transmitting and receiving antennas -- 65
6. Diurnal and seasonal variations of mean signal level -- 72

Bibliography -- 75

Ch. IV. Effect of Air Refraction Index at the Earth Surface on the Mean Field Level in LTP USW -- 77

1. Correlation of the mean field level with the air refraction index at the Earth Surface. -- 77
2. Possibility of predicting field intensity variations -- 81

Bibliography -- 86

Ch. V. Fluctuation of Radiowave Arrival Angles and Instantaneous Patterns of Antennas Directivities -- 88

1. Methods of measuring radiowave arrival angles and recording of instantaneous antenna directional patterns -- 89

Cord 4/10

ACC NR.
AM5027749

2. Fluctuation of radiowave arrival angles in horizontal and vertical planes -- 92
3. Instantaneous antenna directional patterns -- 92

Bibliography -- 102

Ch. VI. Losses in Antenna Gain of IMP USW -- 103

1. Determination and methods of measuring losses in antenna gain -- 103
2. Experimental data on losses in antenna gain -- 108
3. Theoretical investigations on losses in antenna gain -- 114

Bibliography -- 120

Ch. VII. Theories of Long Distance Tropospheric Propagation of USW -- 122

1. Introductory remarks -- 122

Bibliography -- 129

2. Theory of scattering radiowaves by tropospheric turbulent nonhomogeneities -- 130

Cord 5/10

ACC NR:

AM5027749

Bibliography -- 150

- 3. Reflection of radiowaves from dielectric nonhomogeneities of definite dimensions -- 151

Bibliography -- 171

- 4. Reflections of radiowaves from laminated tropospheric nonhomogeneities of random character -- 172

Bibliography -- 179

- Ch. VIII. Engineering Method of Design-Calculation of Field Intensity
- Attenuation -- 180
 - 1. Basic rules of calculation method -- 181
 - 2. Diffraction horizon (a distance, beginning of which, the value of the field intensity, calculated according to the diffraction formulas is smaller than the measured intensity) -- 182
 - 3. Determination of field standard attenuation -- 182
 - 4. Meteorological conditions correction -- 184
 - 5. Local topography correction -- 185
 - 6. Estimate of losses in antenna gain -- 185

Card 6/10

ACC NR: AM5027749

7. Estimate of fadings -- 186

Bibliography -- 188

- Ch. IX. Statistical Characteristics of the Envelope, Phase and Frequency of the Random Signal in ITP USW -- 189
1. Statistical characteristics of atmosphere dielectric constant signal components in ITP -- 189
 2. Distribution laws for the envelopes and phase of various signal components -- 193
 3. Distribution laws of sum-signal envelope --
 4. Multi-dimensional distribution functions of instantaneous value of envelopes and phases of the spaced signals in minute intervals 207
 5. Parameters of multi-dimensional amplitude and phase distribution functions of spaced signals -- 210
 6. Statistical characteristics of instantaneous values of the envelopes of spaced signals in minute intervals -- 222
 7. Statistical characteristics of instantaneous values of spaced signal phases in minute intervals -- 239
 8. Statistical characteristics of instantaneous value of phase first derivatives of spaced signals in minute intervals -- 248

Card 7/10

ACC NR: AM5027749

9. Statistical characteristics of instantaneous values of the first derivative of phase in minute intervals -- 257

Bibliography -- 260

- Ch. X. Experimental Investigations of Rapid and Slow Fadings in ITP USW -- 262
1. Methods of measuring and processing experimental data -- 262
 2. One-dimensional distribution functions of signal instantaneous values -- 264
 3. One-dimensional distribution functions of signal averaged values- 278
 4. Period and frequency in rapid fluctuations of signal envelope-283

Bibliography -- 287

- Ch. XI. Experimental Investigation of Signal Statistical Characteristics at Space, Frequency, Time and Angle Diversity Reception - 288
1. Space-diversity reception -- 288
 2. Frequency-diversity reception -- 295
 3. Time-diversity reception -- 299
 4. Frequency-time diversity reception -- 305
 5. Angle-diversity reception -- 307

Cord 8/10

ACC NR¹ AM5027749

Bibliography -- 312

- Ch. XII. Investigation of Amplitude-Frequency and Phase-Frequency
Signal Characteristics at LTP -- 314
1. Measuring and processing methods of experimental data -- 314
2. Amplitude-frequency characteristics -- 321
3. Phase-frequency characteristics of LTP channel -- 325
4. Frequency characteristics of signal group time delay -- 334

Bibliography -- 350

Ch. XIII. Signal Distortion in LTP USW -- 351

1. Theoretical investigation of distortions appearing in multi-channel FM LTP communication systems -- 352
2. Experimental investigation of distortion in LTP -- 384
3. Distortions appearing during TV transmission over tropospheric radio links -- 389

Bibliography -- 392

Appendix Automation of Signal Statistical Processing -- 394
1. Quantification of continuous signals and coding -- 395
2. Signal quantification instruments -- 397

Cord 9/10

ACC NR: AM5027749

3. Specialized photoelectric input device -- 401
4. Schematics of generalized statistical processing of experimental data -- 404

Bibliography -- 410.

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ARMAND, N.A.; VVEDENSKIY, B.A.; GUSYATINSKIY, I.A.; IGOSHEV, I.P.;
KAZAKOV, L.Ya.; KALININ, A.I.; KOLOSOV, M.A.; LEVSHIN, I.P.;
LOMAKIN, A.N.; NAZAROVA, L.G.; NEMIROVSKIY, A.S.; PROSIN,
A.V.; RYSKIN, E.Ya.; SOKOLOV, A.V.; TARASOV, V.A.; TRASHKOV,
P.S.; TIKHOMIROV, Yu.A.; TROITSKIY, V.N.; FEDOROVA, L.V.;
CHERNYY, F.B.; SHABEL'NIKOV, A.V.; SHIREY, R.A.; SHIFRIN, Ya.S.;
SHUR, A.A.; YAKOVLEV, O.I.; ARENBERG, N.Ya., red.

[Long-distance tropospheric propagation of ultrashort radio
waves] Dal'nee troposfernoe rasprostranenie ul'trakorotkikh
radiovoln. Moskva, Sovetskoe radio, 1965. 414 p.
(MIRA 18:9)

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ACCESSION NR: AP5020117 RB/NS..2

UR/0109/65/010/008/1401/1409
621.371.242

AUTHOR: Armand, N. A.; Kolosov, M. A.

TITLE: Radio wave refraction in the troposphere

SOURCE: Radiotekhnika i elektronika, v. 10, no. 8, 1965, 1401-1409

TOPIC TAGS: electromagnetic wave refraction, tropospheric refraction

ABSTRACT: Formulas are developed for calculating, on the basis of meteorological data, the angle of refraction caused by the troposphere and stratosphere. A high correlation between the radiowave-refraction angle and the ground air refraction index is noted. However, the formulas that include parameter A may prove inaccurate when applied to other than American conditions as the value of this parameter depends on climatic conditions (cf. B. R. Bean and G. D. Thayer, Proc. IRE, 1959, v. 47, no. 5, p. 740). Hence, further experiments are urged. The final formulas are not guaranteed in the interval $\vartheta = 89-90^\circ$ as the initial formulas were based on the concepts of geometrical optics. Orig. art. has: 3 figures, 45 formulas, and 1 table.

Card 1/2

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Card 2/2 *msd*

ARMAND, N.N.

Recent glaciation of the northeastern Kola Peninsula. Vop.geomorf.
i geol.osad.pokr.Kol'.poluost. 1:136-150 '60. (MIRA 15:1)
(Kola Peninsula--Drift)

ARMAND, A.D.; ARMAND, N.N.; NIKONOV, A.A.

Special features of the history of recent glaciation in the
northeastern part of Fennoscandia. Izv.AN SSSR.Ser.geog.
no.2:55-60 Mr-Ap '63. (MIRA 16:4)

1. Geologicheskiy institut Kol'skogo filiala AN SSSR.
(Fennoscandia--Glacial epoch)

12(2)

SOV/11²-59-6-1/21

AUTHOR:

Armand, Ye.B.

TITLE:

The Main Tasks of Soviet Bodybuilding

PERIODICAL:

Avtomobil'naya promyshlennost', 1959, Nr 6, pp 1-2
(USSR)

ABSTRACT:

The article lists several of the tasks confronting Soviet bodybuilders and contains suggestions for the improvement and standardization of designs. The Minsk, Ul'yanovsk and Kutaisi automobile plants will produce trucks with the cab over the engine. Soviet designers must quickly make station car bodies on the chassis of "Volga" and "Chayka" cars. Soviet designers should produce a car with an indigenous external styling to follow up the successful "Moskvich". Such a style should be based on socialist realism. Model design commissions should include artists, sculptors, architects and the car-users themselves.

Card #/A

ASSOCIATION:

Mosplan RUMA

ARMAND, Ye.B.; RASOV, M.I.

Objectives of the automobile industry in the light of decisions of
the July Plenum of the Central Committee of the CPSU. Avt.prom.
no.9:1-4 S '60. (MIRA 13:9)

1. Gosudarstvennyy komitet Soveta Ministrov SSSR po avtomatizatsii
i mashinostroyeniyu i Nauchno-issledovatel'skiy institut tekhnologii
avtomobil'noy promyshlennosti.
(Automobile industry--Technological innovations)

ARMADEROV, R.G.; SEMENOV, V.M., kand.tekhn.nauk

Possibility of using extra-wide lug-type tires for 4x4-type truck
tractors. Avt. prom. 27 no. 4:22-25 Ap '61. (MIRA 14:4)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni
nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Trucks--Tires)

ARMAND, Ye.B.

Automobile industry at the 40th anniversary of the October
Revolution. Avt.i trakt.prom. no.11:1-2 N '57. (MIRA 10:12)

1. Gosplan RSFSR.

(Automobile industry) (Tractor industry)